Rolling Precision Round Stars...

Figure 7: Screen box with interchangable screens.

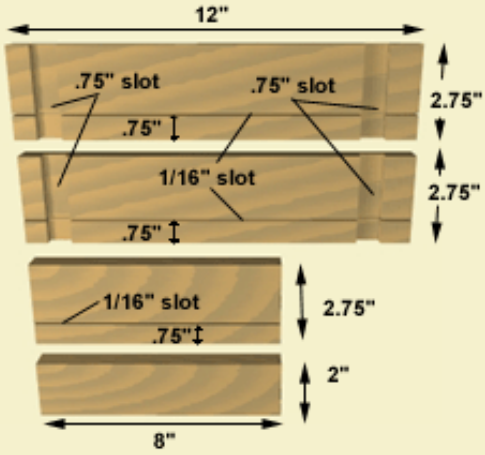

Figure 8: Screen box frame dimensions.

Screening Round Stars:
The key to any good round shell is good round stars, and good round stars can only result from good sizing technique. Poor size consistency will result in sloppy effect transitions. Anyone wishing to make a color changing ball shell that blinks from one color to the next with unified precision needs to start with a good set of sizing screens to achieve this.

Some people think I'm obsessive, but I actually screen my stars up to 3/8" dia. with 1/32" accuracy. While this may seem like a high tolerance, 1/32" of a 1/4" star is actually only a 12% tolerance. Screening to 1/16" simply results in too much size variance for precision color changing timing, but will work fine for simple solid color stars.

With a 1/32" tolerance, you find yourself needing more screen sizes of course. The screens listed in the process diagram on the next page call for 3/16", 1/4", 9/32", 3/8" and 13/32" screens. Since ordering such wide variety of odd sized perforated metal to use for screening would get expensive, I prefer to make my own. Because you are not going to be processing 100s of pounds of stars each day, a small 12" screen box will work just fine. Smaller screens are easier to handle and will be easier to build screens for.

Figure 7 shows a screen box with interchangeable screens that are made from sheets of Formica with holes drilled in them. The Formica drills easily without gumming up the bit and the thin sheets allow stars to drop through easily without getting stuck in the holes. Drilling the holes is of course a rather tedious task, but a drill press will help to make it easier. You only have to make the screens once and they will last a long time, so just think of it as a meditative exercise!

Figure 8 shows the dimensions for the screen box, which will require a table saw or radial arm saw to make due to the slotted groove and dado joints. Note the non slotted piece that leaves an opening for the sheets to slide into at one end.

Of course you can simply find some cheap plastic bins and drill a bunch of holes in the bottom as well. Some hobbyists drill holes in the bottoms of 5 gallon buckets and stack them up in order of largest to smallest, then dump their stars in the top and shake this "screen tower" such that the stars settle out at the various levels.

Figure 9 shows a screening operation in progress. You really need three bins: one to hold the initial star batch, one to catch the stars that fall through the screen and one to store the stars that stay on the

Figure 9: Screening setup.

Figure 10: Well sized stars will align into a tight fitting pattern.

screen. A scoop made by cutting the bottom off a 1/2 gallon juice or milk jug makes an excellent star scoop. However, scoops such as this will sheer pieces of damp stars off, so only use it on dry stars.

The basic process is to roll a whole lot of 3/16" cores, screen out the sub 3/16" for use as micro stars and then roll the rest on to 1/4" stars. I prefer to dry the stars at 1/8" increments, which allows them to dry in only one day. Trying to roll too much comp onto stars in one sitting not only makes them take longer to dry, it requires you to screen them more frequently while still wet, which can be a source of chipping and other damage.

Figure 10 shows how a good batch of accurately sized stars will align themselves into a very snug and symmetrical pattern when laid flat. You should see hexagon outlines as each star aligns perfectly with those around it. You then know you have achieved the Zen of star rolling!

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